Comparisons of Job Characteristics

Focus Occupation: Astronomers (19-2011)
Associated Occupation: Physicists (19-2012)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Astronomers (19-2011)
Associated Occupation: Physicists (19-2012)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Physics	4.3	23.8	24.6	0	Current knowledge level may be sufficient
Mathematics	9.2	23.7	23.6	0	Current knowledge level may be sufficient
English Language	11.2	17.9	16.6	0	Current knowledge level may be sufficient
Engineering and Technology	5.7	17.5	13.6	<<	Extensive education and/or training may be required
Computers and Electronics	8.4	17.1	16.9	0	Current knowledge level may be sufficient
Telecommunications	3.9	7.9	4.3	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 91

Focus Occupation: Astronomers (19-2011)
Associated Occupation: Physicists (19-2012)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	20.4	16.7	<<	Extensive development of skills in this area may be required
Mathematics	6.2	19.5	13.6	<<	Extensive development of skills in this area may be required
Reading Comprehension	10.7	19.0	17.0	<	A higher skill level may be required
Critical Thinking	10.8	16.7	14.1	<	A higher skill level may be required
Active Learning	8.7	16.4	15.1	0	Current skill level may be sufficient
Complex Problem Solving	9.1	15.9	11.5	<<	Extensive development of skills in this area may be required

Learning Strategies	7.2	14.5	10.2	<<	Extensive development of skills in this area may be required
Programming	2.2	12.7	4.0	<<	Extensive development of skills in this area may be required
Technology Design	2.6	9.8	4.4	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Astronomers (19-2011)
Associated Occupation: Physicists (19-2012)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Mathematical Reasoning	6.3	20.7	14.2	<<	Extensive improvement in abilities may be required
Oral Comprehension	12.5	19.9	15.2	<<	Extensive improvement in abilities may be required
Written Comprehension	11.0	19.2	17.1	<	Some improvement in abilities may be required
Oral Expression	12.4	19.0	16.1	<	Some improvement in abilities may be required
Number Facility	6.3	18.6	12.2	<<	Extensive improvement in abilities may be required
Inductive Reasoning	10.2	18.3	15.3	<	Some improvement in abilities may be required
Deductive Reasoning	10.6	17.8	14.8	<	Some improvement in abilities may be required
Originality	7.6	17.8	12.6	<<	Extensive improvement in abilities may be required
Fluency of Ideas	7.6	16.6	11.5	<<	Extensive improvement in abilities may be required
Information Ordering	9.9	16.3	11.6	<<	Extensive improvement in abilities may be required
Category Flexibility	9.0	15.8	12.5	<<	Extensive improvement in abilities may be required
Speed of Closure	5.9	12.4	6.7	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 98

Focus Occupation: Astronomers (19-2011)
Associated Occupation: Physicists (19-2012)

Work Activities	Exclusivity of Activity

Adhere to safety procedures	12
Advise clients or customers	19
Advise governmental or industrial personnel	28
Analyze scientific research data or investigative findings	27
Classify plants, animals, or other natural phenomena	69
Collect scientific or technical data	30
Collect statistical data	47
Communicate technical information	4
Conduct field research or investigative studies	52
Conduct nuclear research	89
Conduct research into the relationship between time or space	99
Conduct research on astronomical phenomenon	99
Confer with research personnel	50
Confer with scientists	54
Design equipment, apparatus, or instruments for scientific research	87
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop scientific or mathematical hypotheses, theories, or laws	62
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Explain complex mathematical information	30
Forecast or predict phenomena based upon research data	71
Make decisions	24
Make presentations	13
Perform statistical analysis in physical science or geological research	71
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Present research papers or dissertations on physical science issues	78
Record test results, test procedures, or inspection data	48
Resolve engineering or science problems	46
Use computers to enter, access or retrieve data	3
Use knowledge of investigation techniques	16
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use physical science research techniques	68
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use teaching techniques	29
Use word processing or desktop publishing software	17
Write research or project grant proposals	33
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 85

Focus Occupation: Astronomers (19-2011)
Associated Occupation: Physicists (19-2012)

Tools and Technologies	Exclusivity
Cameras	2
Computers	1
Content authoring and editing software	1
Crystallography equipment	23
Data management and query software	1
Development software	4
Electrical measuring and testing equipment	7
Indicating and recording instruments	2
Industry specific software	1
Laboratory cooling equipment	25
Laboratory electron and solid state physics equipment	29
Light and wave generating and measuring equipment	4
Miscellaneous optical components	51
Spectroscopic equipment	10
Viewing and observing instruments and accessories	4

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.